

Responses to National Remedy Review Board

1. The package presented to the Board did not provide sufficient information to evaluate fully the entire remedy described in the draft proposed plan, nor the effectiveness of remedial alternatives in meeting remedial action objectives. The Board notes significant data gaps in the material the Region presented. For example, the Board believes the Region needs more information to address the potential for perchlorate releases at rocket research area; the potential presence of principal threat wastes (e.g., dense non-aqueous phase liquids (DNAPL) pooled on subsurface confining layers), and the potential of stringers of trichloroethylene (TCE) in the vadose and/or saturated zones. Similarly, the Board recommends the Region develop information to evaluate the effectiveness of possible contingent remedial alternatives for the Roza 2 aquifer.

Notwithstanding these issues, ground water concentrations exceed maximum contaminant levels (MCLs); and the Board agrees that there is a basis for action on the ground water contamination within the Roza 1 aquifer. Consistent with Agency policy, the Region should address ongoing sources early to prevent ground water recontamination. Therefore, the Board recommends that the Region proceed with either a phased or an interim remedy, consistent with the Ground Water Presumptive Strategy (Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water At CERCLA Sites (EPA 540-R-96-023, October 1996)). For example, it may be appropriate to address Area 20 as a separate Operable Unit and use the data collected during this response action to inform Agency decision-making for subsequent phases at the site. Other concepts from the Ground Water Presumptive Strategy that the Board recommends for this situation are: determination of aquifer restoration potential, utilization of early action to reduce site risks earlier in the site remediation process to control further contaminant migration and provide additional site characterization information, and identification of DNAPL sources. These steps can have a significant impact on the cost, duration, and effectiveness of the preferred alternative. Finally, a more thorough understanding of the uncertainties associated with these issues should be developed and discussed in the decision documents.

Response: The Region acknowledges that the Board package lacked detail in certain areas. Many of these areas of uncertainty will be handled as part of remedy implementation. We agree with your assessment that there is a basis for action for the groundwater in the Roza 1 aquifer. The Region still plans to issue a decision for the entire Site rather than perform an interim action. As the Board is aware, we are in negotiations with various potentially responsible parties and in our opinion dealing with the Site as a whole is more conducive to settlement. One of the key components of the remedy will be to fill data gaps regarding potential source term in the landfill areas as well as the deep vadose zone. Additional wells will also be drilled to look for perchlorate and to further define plumes in the deeper basalts. The proposed plan discusses that data will be collected as part of design to determine whether an action is needed in Roza II, and, if so, the action will be required. The pump and treat system will be adapted over time, consistent with the Ground Water Presumptive Strategy, to maximize effectiveness in achieving environmental and human health protection.

2. The suitability of pump and treat (P&T) or in-situ treatment (e.g., injection of permanganate or emulsified zero valent iron (eZVI)) is difficult to assess given the limited characterization information and remedy design details provided in the package. The types of contamination present, their spatial distribution, and hydrogeologic features (such as preferential flowpaths in fractured bedrock) can significantly complicate remedy implementation. The suitability of P&T in the fractured rock environment at the site is not established by the few details presented. The placement and distribution of permanganate or eZVI in fractured rock also can be problematic, even if the source areas were well defined. Monitored natural attenuation (MNA) also is mentioned as a potential alternative for dissolved phase TCE in ground water; however, decreasing concentration trends and attenuation processes (dispersion, sorption, degradation, transformation, etc.) were not adequately documented in the package (neither was the proposed long-term monitoring plan).

The package provided to the Board suggests that extensive sampling is expected to take place in the future, including placement and sampling of numerous new wells. The Region indicates that installing a P&T system and using it both for remediation and as a means of further analyzing the hydrogeology of the site is not inconsistent with the Agency's actions at other sites. The Board notes that while this may be the case, it also frequently leads to the need to revise remedies after construction. The Board recommends that the Region continue to develop more site characterization data (source nature and location, plume extent, ground water flow in the fractured rock, etc.) that will be useful before a remedy is implemented.

Response: We agree and, as discussed above, data collection will be a key component of the selected remedy.

3. The package indicated that soil excavations would be triggered by exceeding soil concentrations based on Washington Model Toxics Control Act (MTCA). The Board recommends that the Region further evaluate exposure pathways for soil areas and develop additional information on the extent of contamination in soil source areas and surface disposal sites. The Board also recommends the Region consider developing a contingent approach for different soil source areas. The Region could develop decision-making criteria that could be used to determine whether removal or containment for lesser-contaminated areas is more appropriate. The decision document should describe how the soil concentration triggers relate to health risk and how remedial actions would be triggered as work progresses during design and remediation.

Response: We agree with this comment and the decision document will discuss triggers that may allow leaving non mobile not highly toxic material in place.

4. It does not appear to the Board that MTCA Method C is an ARAR at this site, but it may be appropriate to use it as a "to-be-considered" guidance (TBC) in developing soil cleanup levels.

Response: MTCA has been evaluated as a potential ARAR at a number of sites in Washington. The Region believes that at this site, certain aspects of MTCA may be considered an ARAR for the proposed actions.

5. The package that the Board reviewed lacked detailed information regarding the actions currently underway to protect users of private wells from exposure to contamination above the MCLs. The Board recommends that the decision documents explicitly include continued identification and monitoring of appropriate private wells as a component of the ground water remedy. The ground water alternatives should also include provision of whole house filtration systems, or an alternate water supply, for any residential wells for which samples are found to exceed MCLs. The Board recommends that this be a component of all ground water alternatives, with the exception of No Action.

Response: The Region has been working closely with Grant County to develop a program to help protect users of private domestic wells from possible exposure to TCE. It is expected that the Region will enter into a cooperative agreement and provide funding to the County to implement a program to monitor well drilling and provide water testing services. The decision document will specify the various institutional controls needed to protect human health. Also, it should be noted a program is currently in place to sample a representative number of domestic wells each year to look for TCE contamination.

6. The package presented to the Board includes a remedial action objective to reduce risk to human and ecological receptors, and the proposed plan calls for clean-up actions on contaminated soils to "protect human health and the environment." However, the materials provided to the Board indicated that the ecological risk assessment conducted at the site discounted ecological risk from ground water releases into Moses Lake and identified no specific terrestrial ecological risks. In contrast, during the discussion with the Board, the Region indicated that phytotoxicity might be occurring at the Site in some areas. If phytotoxicity were occurring, this would suggest that there are contaminants of potential concern that have not been adequately characterized. The Board recommends that the Region provide additional information to clarify whether effects in the areas noted as impacted result from physical disturbance or phytotoxicity. In addition, the Board recommends that the Region ensure that statements in the decision documents regarding the need to take remedial action based upon protection of the environment are consistent with statements on the existing ecological risk.

Response: The majority of the sites do not appear to have a major ecological concern and the soils are greatly disturbed. Although we are not basing a decision to remediate on ecological risk, two sites do appear to have indications of reduced vegetative growth due to chemical contamination. Both these sites will be sampled and contaminated soil will be removed as required.

7. The costs presented to the Board in Attachment 1 (Draft Proposed Plan) did not provide sufficient detail to undertake a thorough evaluation. For example, DOD has not yet fully characterized waste source areas, the extent of the ground water plumes, or the extent of perchlorate in ground water, which make meaningful cost estimation difficult. These uncertainties could affect the total cost of the response action at this site. In addition, DOD identified a range of timeframes for ground water pump and treat system operation that is not consistent with the timeframe used to estimate remedy cost. Finally, the cost backup provided in Attachment 4 (Groundwater Costs) and 5 (Site 20 Costs), taken from the Army Corps draft

Feasibility Studies, are inconsistent with those provided in Attachment 1. Therefore, the Board cannot comment on the cost effectiveness of this proposed action at this time. The Board recommends that the Region reconcile the cost information, prepare any necessary backup cost documentation, and present the information in site decision documents.

Response: The Region agrees that cost information needs to be updated. The EPA National Risk Management Research Laboratory recently completed a review of the input parameters and associated cost and provided the Region with a conceptual design and budgetary costs for the pump and treat system. In addition, a letter report will be prepared and sent to the record prior to initiating public comment detailing how costs were developed for the 12 source areas.